METHOD AND MATERIALS FOR CONTROLLING MIGRATION OF BINDER LIQUID IN A POWDER

ABSTRACT OF THE DISCLOSURE

A method and apparatus for controlling the migration of binder liquid in a bulk powder. The bulk powder may be deposited in a powder bed and contains at least two different substances, each in powder form. One substance gives the printed part its bulk properties, forms most of the powder, and preferably is either insoluble or not significantly soluble in the binder liquid. The other powder substance is a migration control substance. Upon interaction with the binder liquid, this substance may absorb the binder liquid and form a gel or dissolve into the binder liquid increasing viscosity thereby inhibiting binder migration. No chemical reactions occur between the binder liquid and any of the substances in the powder bed. In another embodiment of the instant invention, binder migration may be further controlled by first printing a barrier region in the powder bed containing the migration control substance. The instant invention provides functional and aesthetic advantages including more accurate release profiles in oral dosage forms and more dimensionally controlled edges and surfaces of parts. The result is sharper, more dimensionally controlled edges and surfaces of parts and sharper meetings of dissimilar binders in cases where more than one binder liquid is involved. The method is useful for printing pharmaceutical Oral Dosage Forms, attaining better control of the time release characteristics.